Newtons4th Ltd

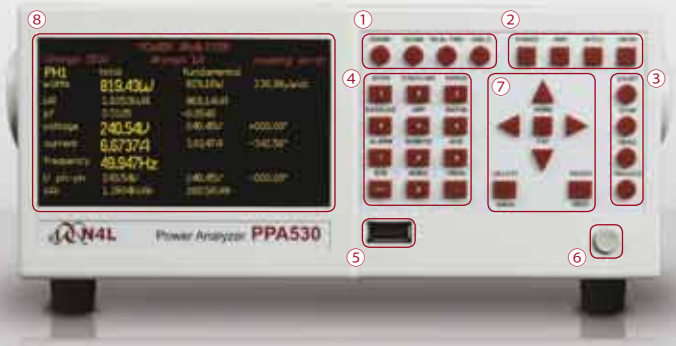
Compact Power Analyzers

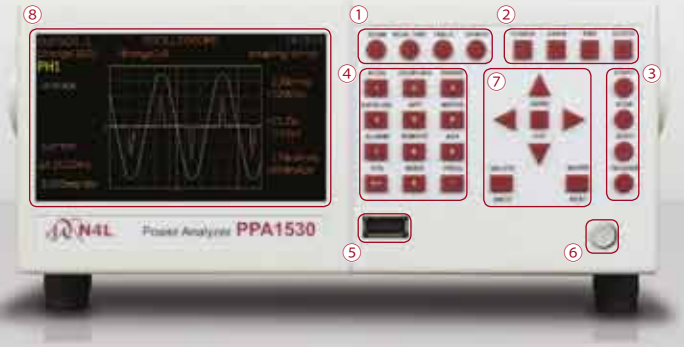
PPA500 Series
PPA1500 Series

High Accuracy - Low Cost

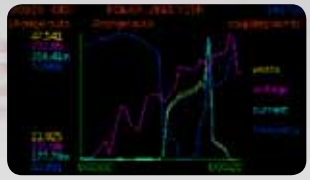
Leading wideband accuracy	Basic 0.05% with class leading high frequency performance
Oscilloscope/Graphical Display	PPA1500 features Oscilloscope and graphical datalog display
Wide frequency range	DC, 10mHz to 1MHz (DC, 10mHz to 500kHz PPA500)
Fast sample rate and No-Gap	1M samples/s - High accuracy in noisy applications
Leading phase accuracy	0.005 degrees plus 0.01 degrees per kHz
Built in high precision current shunt	20Arms 300Apk or 30Arms 1000Apk direct plus a wide range of external sensors
Versatile interfaces	RS232, USB and optional LAN, GPIB
Range of PC software options	Remote control, monitoring and recording of real time data, tables and graphs

PPA5/15xx Precision Power Analyzer





FRONT VIEW



PPA1500 Graphical Datalog View

① SCREEN DISPLAY OPTIONS

PPA5xx: Zoom, Real time and Table

PPA15xx: Zoom, Real Time, Table, Graph

② MEASUREMENT FUNCTION SELECTION BUTTONS

PPA5xx: POWER ANALYZER, TRUE RMS VOLTMETER, POWER INTEGRATOR, HARMONIC ANALYZER

PPA15xx: POWER ANALYZER, HARMONIC ANALYZER, TRUE RMS VOLTMETER, OSCILLOSCOPE

Note: The PPA15xx includes the following modes via sub menu: POWER INTEGRATOR, PHASE METER, IMPEDANCE METER

③ START, STOP, ZERO AND TRIGGER

Trigger button refreshes measurement, Zero resets datalog or allows an offset trim

Start and Stop buttons provide manual control of a measurement period

④ MEASUREMENT SETTINGS BUTTONS

Acquisition settings - Sets wiring configuration, Smoothing and data logging, Set coupling to AC, DC or AC+DC, Range - Internal or external attenuator, autoranging settings, scale factors, Application mode - Ballast, inrush current and standby power

⑤ FRONT USB PORT

USB memory port allows data and colour screen prints to be saved directly to a USB pen drive

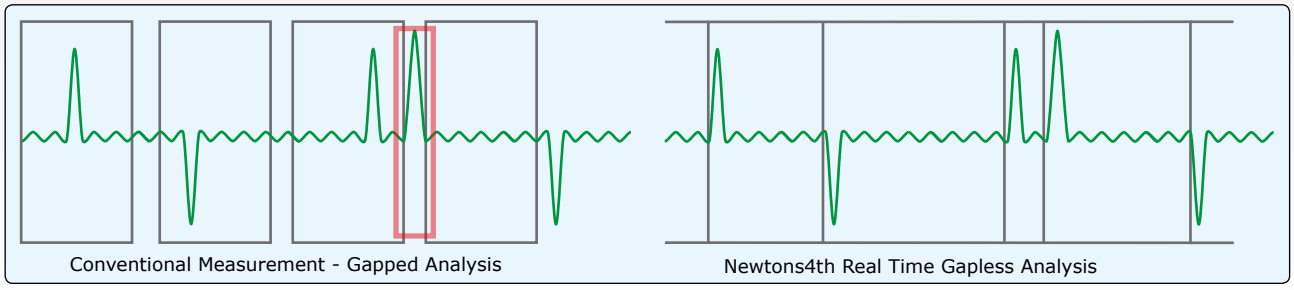
⑥ POWER BUTTON ⑦ MENU SELECTION AND CURSOR CONTROL

⑧ DISPLAY SCREEN

White LED backlit colour TFT display with high contrast and wide viewing angle

Real Time No Gap Analysis

The PPA5xx/PPA15xx series Power Analyzers use a real time no gap analysis technique unique to Newtons4th that enables real time measurements to be taken with no gap in incoming data from the ADC. This ensures that no events are missed, which is particularly important for the correct measurement of asynchronous waveforms.

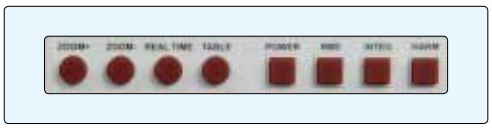


Conventional Measurement - Gapped Analysis

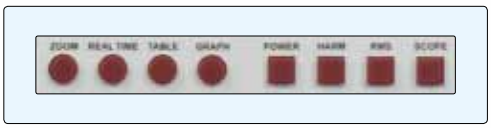
Newtons4th Real Time Gapless Analysis

Intuitive User Interface Simplifies Setup

The PPA5xx/PPA15xx user interface has been developed with ease of use in mind. A simple button layout eases setup of the instrument allowing the engineer to commence measurements quickly with no fuss.



PPA5xx

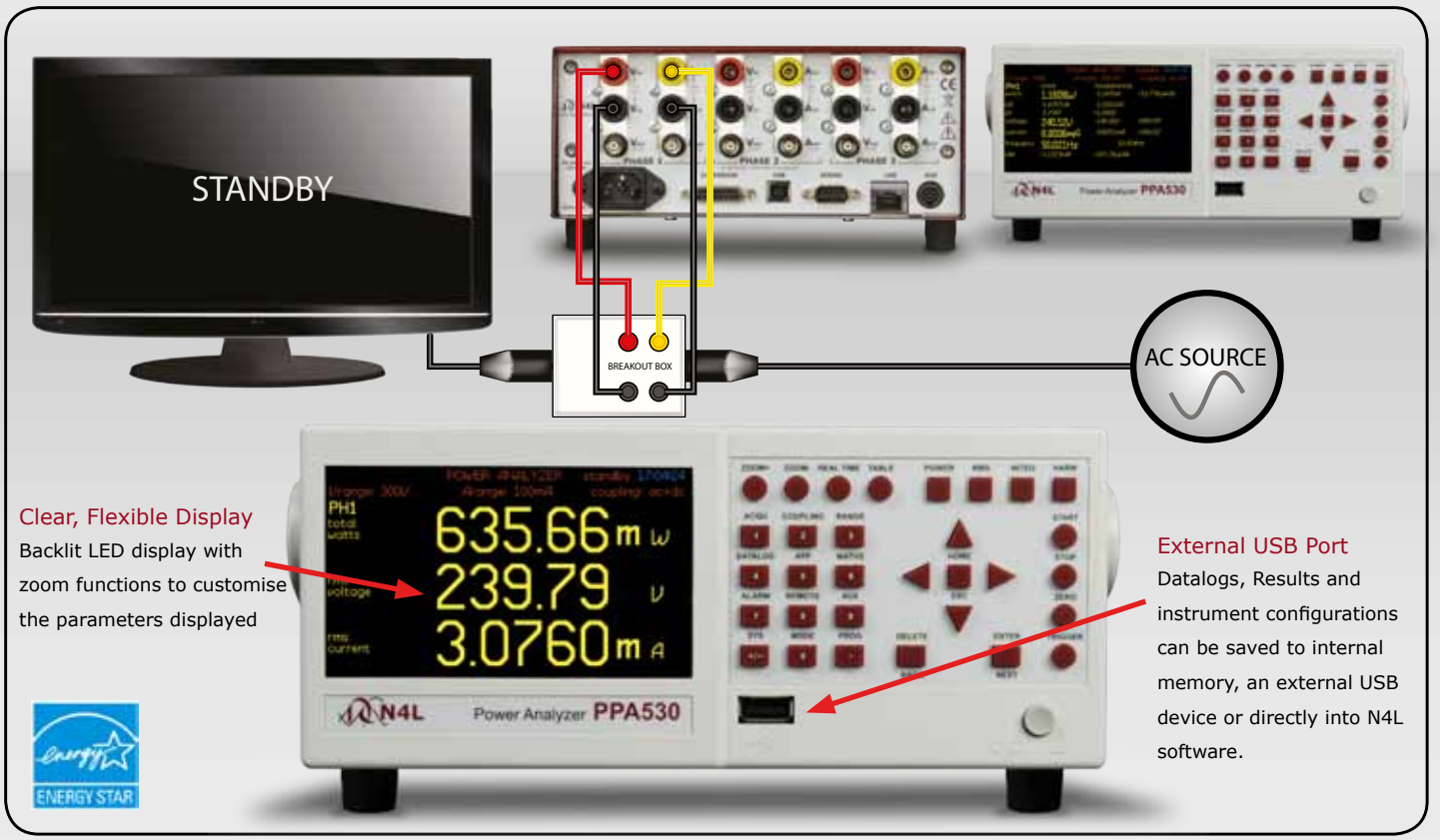


PPA15xx

Example Applications

Example Application : Standby Power Measurement IEC62301/EN50564

The PPA5xx and PPA15xx are the perfect instruments for tests such as EN50564 Standby Power Testing. PC software that provides simple testing and reporting for EN50564 is available from the N4L website.



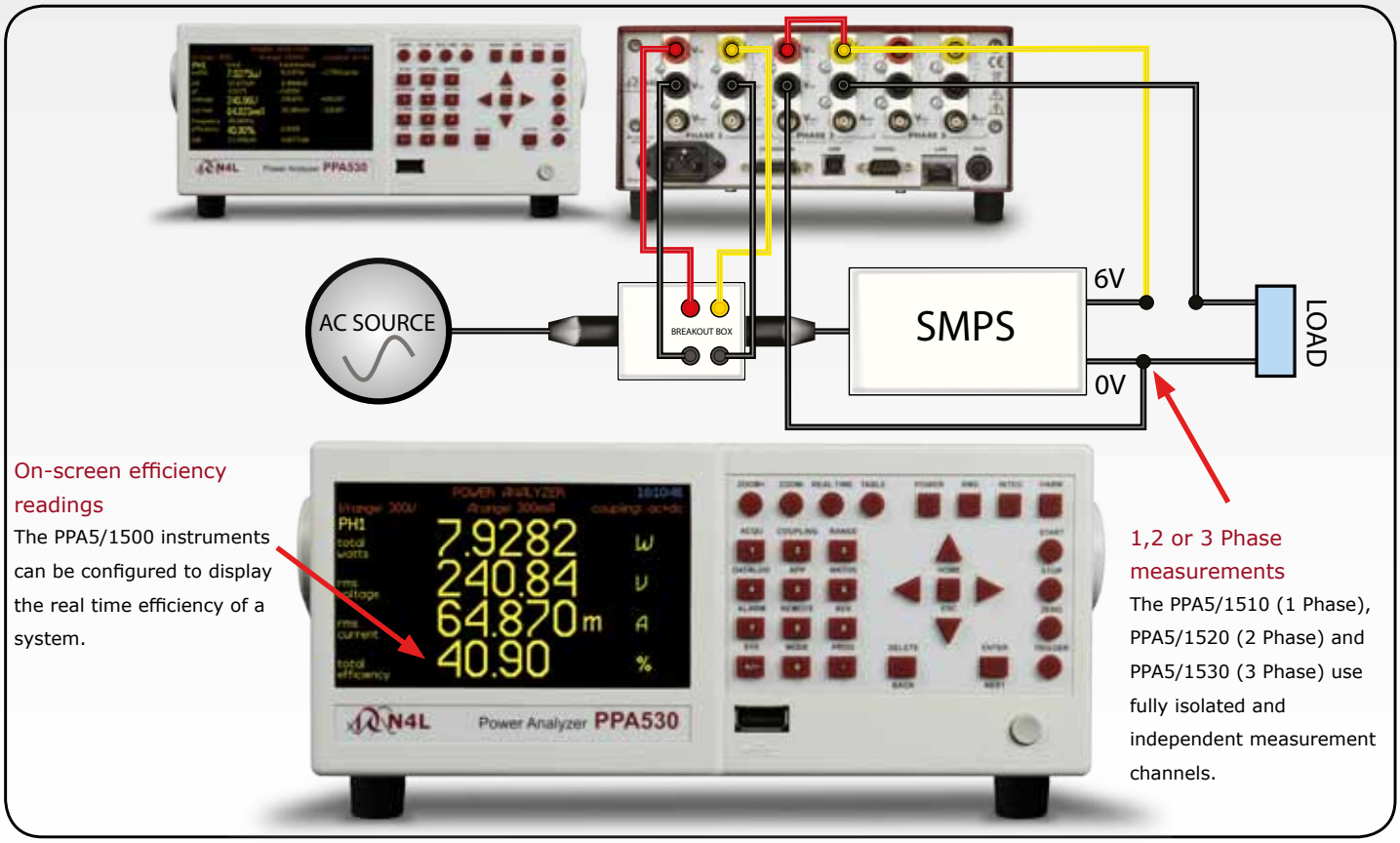
Clear, Flexible Display
Backlit LED display with zoom functions to customise the parameters displayed

External USB Port
Datalogs, Results and instrument configurations can be saved to internal memory, an external USB device or directly into N4L software.

Meets or exceeds the requirements and methodology of U.S. EPA (Energy Star), U.S.DOE, California Energy Commission (CEC), among others.

Example Application : AC-DC Power Supply Efficiency Testing using a PPA500/PPA1500

The PPA5/1520 or PPA5/1530 can be used in 2 Phase 2 Wattmeter configuration for efficiency testing of power supplies, ballasts and many other devices.



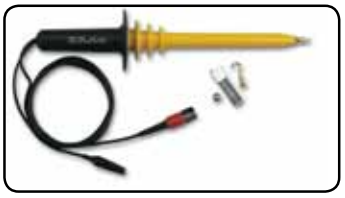
On-screen efficiency readings
The PPA5/1500 instruments can be configured to display the real time efficiency of a system.

1,2 or 3 Phase measurements
The PPA5/1510 (1 Phase), PPA5/1520 (2 Phase) and PPA5/1530 (3 Phase) use fully isolated and independent measurement channels.

ACCESSORIES

High Performance Voltage Attenuating Probes			
Model	Voltage Range	Frequency Range	Details
TT-HV250	2500Vpk	300MHz	High Voltage Probe (Passive) 2.5kVpk 100:1
TTV-HVP	15000Vpk	50MHz	High Voltage Probe (Passive) 15kVpk 1000:1
ATT10	30Vpk	30MHz	10:1 Voltage Attenuator Box (For use in conjunction with HV Probes when output voltage of probe is >3Vpk, BNC Input/BNC Output)
ATT20	60Vpk	30MHz	20:1 Voltage Attenuator Box (For use in conjunction with HV Probes when output voltage of probe is >3Vpk, BNC Input/BNC Output)
ULCP	3000Vpk	2MHz	1000:1 Ultra Low Capacitance Probe (Active), For use in applications such as Ballast Testing (<1pF Capacitance)

TT-HV250 2.5kVpk Probes



TT-HVP 15kVpk Probes

ATT10

ULCP

High Performance External Current Measurment Options					
Model Number	Measuring Range	Frequency Range	Basic Accuracy	Phase Accuracy	Details
HF003	3Arms - 30Apk	DC - 2MHz	470mΩ (±0.1%)	0.0001° / kHz	3Arms External Current Shunt, BNC Output (Use with PPA External Input)
HF006	6Arms - 60Apk	DC - 2MHz	100mΩ (±0.1%)	0.001° / kHz	6Arms External Current Shunt, BNC Output (Use with PPA External Input)
HF020	20Arms - 200Apk	DC - 2MHz	10mΩ (±0.1%)	0.01° / kHz	20Arms External Current Shunt, BNC Output (Use with PPA External Input)
HF100	100Arms - 1000Apk	DC - 2MHz	1mΩ (±0.1%)	0.05° / kHz	100Arms External Current Shunt, BNC Output (Use with PPA External Input)
HF200	200Arms - 2000Apk	DC - 2MHz	0.5mΩ (±0.1%)	0.1° / kHz	200Arms External Current Shunt, BNC Output (Use with PPA External Input)
HF500	500Arms - 5000Apk	DC - 2MHz	0.2mΩ (±0.1%)	0.1° / kHz	500Arms External Current Shunt, BNC Output (Use with PPA External Input)

External Shunt HF-003

External Shunt HF-100

External Shunt HF-200

External Shunt HF-500

Probe/Current Clamp Transformer: AC						
Model Number	Measuring range	Frequency range	Accuracy	Details	Clamp diameter	Category
M3 UB 50A-1V	100mA～50A	40Hz～5kHz	1%	100mA to 50A AC Current Clamp	15mm×17mm	600V CATIII
M3 U 100A-1V	1A～100A	40Hz～5kHz	1%	1A to 100A AC Current Clamp	15mm×17mm	600V CATIII
S UE 200A-1V	1A～200A	40Hz～5kHz	1%	1 A to 200A AC Current Clamp	50mm ø	600V CATIII
S UE 250 500 1000-1V	1A～250A/500A/1000A	40Hz～5kHz	1%(250A) 0.5%(500+1000A)	1 A to 250/500/1000A AC Current Clamp	50mm ø	600V CATIII
US UE 1000A-1V	1A～1000A	40Hz～5kHz	1%	1A to 1000A AC Current Clamp	43mm ø	600V CATIII
SM UE 1000A-1V	0.5A～1000A(1%>100A)	15Hz～15kHz	1%	0.5A to 1000A AC Current Clamp	54mm ø	600V CATIII
SM UB 1000A-1V	0.5A～1000A(0.5%>10A)	15Hz～15kHz	0.5%	0.5A to 1000A AC Current Clamp	54mm ø	600V CATIII
P32 UE 1000A-1V	5A～1000A	40Hz～5kHz	1%	5 A to 1000A AC Current Clamp	83mm ø (125mm×47mm or 100m m×58mm)	600V CATIII
P32 UE 3000A-1V	5A～3000A	40Hz～5kHz	1%	5 A to 3000A AC Current Clamp	83mm ø	600V CATIII

Current Clamp M3-UB 50A-1V

Current Clamp S-UE 200A-1V

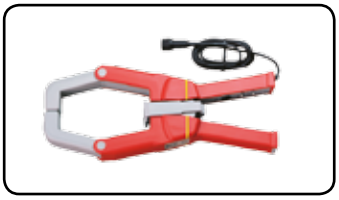
Current Clamp SM-UB 1000A-1V

Current Clamp P32-UE 1000A-1V

Probe / Current Clamp (Hall effect): AC + DC						
Model number	Measuring range	Frequency range	Accuracy	Details	Clamp diameter	Category
SC 3C 100A-1V	1A ~ 100A	DC ~ 5kHz	2%	1A to 100A AC+DC Current Clamp	50mm ø	600V CATIII
SC 3C 1000A-1V	1A ~ 1000A	DC ~ 2kHz	1%	1A to 1000A AC+DC Current Clamp	59mm ø	600V CATIII
P20 3C 2000A-2V	40A ~ 1000/2000A	DC ~ 2kHz	1%	40A to 2000A AC+DC Current Clamp	83mm ø	600V CATIII
P40 3C 4000A-2V	40A ~ 2000/4000A	DC ~ 2kHz	1.5%	40A to 4000A AC+DC Current Clamp	83mm ø	600V CATIII
P50 3C 5000A-2V	50A ~ 1000/5000A	DC ~ 2kHz	1.5%	50A to 5000A AC+DC Current Clamp	83mm ø	600V CATIII

Current Clamp SC 3C 100A-1V

Current Clamp SC 3C 1000A-1V



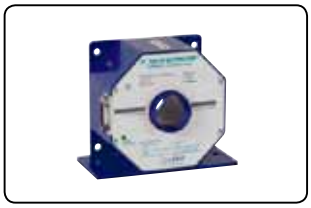
Current Clamp P20 3C 2000A-2V

Current Clamp P50 3C 5000A-2V

Rogowski Current Transducer: AC / Zero Flux Current Transducer: AC+DC						
Model number	Measuring range	Frequency range	Accuracy	Details	Coil/Through Hole Circumference	Category
WR5000 Rogowski	1A ~ 5000A	1Hz ~ 1MHz	0.05%	1A to 5000A AC Rogowski Coil	600mm	600V CATIII
WR10000 Rogowski	1A ~ 10000A	1Hz ~ 1MHz	0.05%	1A to 5000A AC Rogowski Coil	600mm	600V CATIII
Danisense Zero Flux Current Transducer	0A ~ 200A	DC ~ 250kHz	0.01%	200A Zero Flux Current Transducer	27.6mm	600V CATIII
Danisense Zero Flux Current Transducer	0A ~ 600A	DC ~ 250kHz	0.01%	600A Zero Flux Current Transducer	27.6mm	600V CATIII
LEM IT-60S Zero Flux Current Transducer	0A ~ 60A DC/pk (42Arms)	DC ~ 800kHz	0.01%	60A Zero Flux Current Transducer	26mm	600V CATIII
LEM IT-200S Zero Flux Current Transducer	0A ~ 200A DC/pk (141Arms)	DC ~ 500kHz	0.01%	200A Zero Flux Current Transducer	26mm	600V CATIII
LEM IT-700S Zero Flux Current Transducer	0A ~ 700A DC/pk (495Arms)	DC ~ 100kHz	0.01%	700A Zero Flux Current Transducer	30mm	600V CATIII

WR5000 Rogowski Coil

Danisense DS600



LEM IT700-S

PPA500 SERIES MODELS

Phases	Model	Specification
1 Ph	PPA510	DC, 10mHz ~ 500kHz Normal: 100mApk ~ 300Apk x10: 10mApk ~ 30Apk
2 Ph	PPA520	
3 Ph	PPA530	

Phases	Model	Specification
1 Ph	PPA510-HC	DC, 10mHz ~ 500kHz Normal: 300mApk ~ 1000Apk x10: 30mApk ~ 100Apk
2 Ph	PPA520-HC	
3 Ph	PPA530-HC	

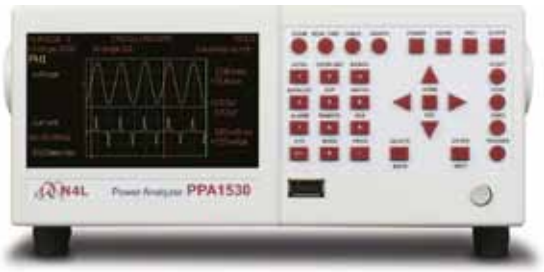
PPA1500 SERIES MODELS

Phases	Model	Specification
1 Ph	PPA1510	DC, 10mHz ~ 1MHz Normal: 100mApk ~ 300Apk x10: 10mApk ~ 30Apk
2 Ph	PPA1520	
3 Ph	PPA1530	

Phases	Model	Specification
1 Ph	PPA1510-HC	DC, 10mHz ~ 1MHz Normal: 300mApk ~ 1000Apk x10: 30mApk ~ 100Apk
2 Ph	PPA1520-HC	
3 Ph	PPA1530-HC	

PPA500

PPA1500



PPA5/1530

Calibration and ISO17025 Certification

UKAS PPA500 PPA1500

Newtons4th are an accredited UKAS Calibration laboratory, all PPA500 and PPA1500 Power Analyzers are supplied with an ISO17025 UKAS Calibration Certifcate as standard. Calibration of N4L Power Analyzers is an integral and important part of our service to our clients, we offer quick turnaround times at a competitive price. Re-Calibration is also available at our international offices and various distributors throughout the world*.

UKAS CALIBRATION
7949

Schedule of Accreditation PPA500 PPA1500

N4L's schedule of accreditation to ISO17025 is wide ranging and an overview of the schedule is detailed below, for more specific information please see the UKAS website to view the full accreditation schedule.

ISO17025 UKAS Accreditation Schedule		
	Signal Amplitude	Frequency Range
Voltage Sine Amplitude	1V to 1008V	16Hz to 850Hz
Voltage Harmonic Amplitude	0V to 302V	16Hz to 6kHz
Current Sinewave Amplitude	100mA to 48A	16Hz to 850Hz
Current Harmonic Amplitude	0A to 15A	16Hz to 6kHz
Current to Voltage Phase Angle	-180° to +180°	16Hz to 850Hz
Apparent Power (VA Product)	100mVa to 48.4kVA	16Hz to 850Hz
AC Power	0W to 48.4kW	16Hz to 850Hz
Current Harmonic Amplitude to IEC61000-4-7	0A to 6A	16Hz to 6kHz
Flicker to IEC61000-4-15	Pinst(Sinusoidal Modulation)	As per IEC61000
	Pinst(Rectangular Modulation)	
	Pst	
	Frequency Changes	
	Distorted Voltage with Multiple Zero Crossings	
	Harmonics with Sidebands	
	Phase Jumps	
	Rectangular Changes with Duty Cycle	

Due to the specialist nature of Power Measurement Instrumentation Calibration, N4L utilise both commercially available calibration equipment (such as the Fluke 6105A for UKAS Certification) along with N4L bespoke designed signal generation equipment in order to calibrate our instruments over the full frequency range (up to 2MHz). Calibration over the full frequency range is uncommon given that such signal generation equipment is not commercially available. When supplied with an N4L analyzer, all customers will receive a calibration certificate covering the complete frequency range.

*UKAS Calibration is available from N4L UK HQ only, details of calibration performed at other locations is subject to local accreditation, please contact your local office for more details.

SPECIFICATION

		PPA500				PPA1500			
Frequency Range									
		Normal	DC, 10mHz ~ 500kHz			Normal	DC, 10mHz ~ 1MHz		
		x10	DC, 10mHz ~ 100kHz			x10	DC, 10mHz ~ 100kHz		
Voltage Input									
Internal	Range	Normal	1Vpk ~ 2500Vpk(1000Vrms) in 8 ranges			Normal	1Vpk ~ 2500Vpk(1000Vrms) in 8 ranges		
		x10	100mVpk ~ 300Vpk(1000Vrms) in 8 ranges			x10	100mVpk ~ 300Vpk(1000Vrms) in 8 ranges		
	Accuracy	Normal	0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5mV			Normal	0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5mV		
		x10	0.05% Rdg+0.1% Rng+(0.01%×kHz Rdg)+1mV			x10	0.05% Rdg+0.1% Rng+(0.01%×kHz Rdg)+1mV		
External	Range	1mVpk ~ 3Vpk in 8 ranges【BNC connector 3Vpk max input】				1mVpk ~ 3Vpk in 8 ranges【BNC connector 3Vpk max input】			
	Accuracy	0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5uV				0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+5uV			
Current Input									
Internal		20Arms Current Shunt 4mm safety connectors	Ranges	Normal	100mApk ~ 300Apk(20Arms) in 8 ranges	Ranges	Normal	100mApk ~ 300Apk(20Arms) in 8 ranges	
				x10	10mApk ~ 30Apk in 8 ranges		x10	10mApk ~ 30Apk in 8 ranges	
			Accuracy	Normal	0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 500uA	Accuracy	Normal	0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 500uA	
				x10	0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 100uA		x10	0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 100uA	
		30Arms Current Shunt 4mm safety connectors	Ranges	Normal	300mApk ~ 1000Apk(30Arms) in 8 ranges	Ranges	Normal	300mApk ~ 1000Apk(30Arms) in 8 ranges	
				x10	30mApk ~ 100Apk in 8 ranges		x10	30mApk ~ 100Apk in 8 ranges	
			Accuracy	Normal	0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 1mA	Accuracy	Normal	0.05% Rdg + 0.1% Rng + (0.005% x kHz Rdg) + 1mA	
				x10	0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 300uA		x10	0.05% Rdg + 0.1% Rng + (0.01% x kHz Rdg) + 300uA	
External input (External shunt Current sensor)		BNC Connector (Max input 3Vpk)	Ranges	1mVpk ~ 3Vpk in 8 ranges		Ranges	1mVpk ~ 3Vpk in 8 ranges		
			Accuracy	0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+ 5µV		Accuracy	0.05% Rdg+0.1% Rng+(0.005%×kHz Rdg)+ 5µV		
Phase Accuracy									
		Normal	0.01deg+(0.01deg x kHz)			0.01deg+(0.01deg x kHz)			
		x10	0.01deg+(0.02deg x kHz)			0.01deg+(0.02deg x kHz)			
Power Accuracy									
		Normal	[0.1%+0.1%/pf+(0.01%×kHz)/pf] Rdg+0.1%VA Rng			[0.1%+0.1%/pf+(0.01%×kHz)/pf] Rdg+0.1%VA Rng			
		x10	[0.1%+0.1%/pf+(0.02%×kHz)/pf] Rdg+0.1%VA Rng			[0.1%+0.1%/pf+(0.02%×kHz)/pf] Rdg+0.1%VA Rng			
40-400Hz		As per standard spec with Rng error reduced from +0.1%V,A,VA Rng to 0.05%				As per standard spec with Rng error reduced from +0.1%V,A,VA Rng to 0.05%			
Minimum Current Measurement at Full Accuracy									
PPA5/1500 20A		1mA							
PPA5/1500 30A		3mA							
General									
Crest Factor		20(Voltage and Current)							
Sample Rate		1Ms/s on all channels, No-Gap				1Ms/s on all channels, No-Gap			
IEC Modes		IEC62301/EN50564 Standby Power				IEC62301/EN50564 Standby Power			
Application Modes		Ballast, Inrush, Power Transformer, Standby Power				Ballast, Inrush, Power Transformer, Standby Power			
CMRR - Common Mode Rejection Ratio									
		250V @ 50Hz - ≥ 1mA (150dB)							
		100V @ 100kHz - ≥ 3mA (130dB)							
Measurement Parameters									
		W, VA, Var, pf, V & A - rms, rectified mean, AC, DC, Peak, Surge, Crest Factor, Form Factor, Star to Delta Voltage, +ve Pk, -ve Pk							
		Frequency (Hz), Phase (deg), Fundamentals, Impedance							
		Harmonics, THD, TIF, THF, TRD, TDD							
		Integrated Values, Datalog, Sum and Neutral values							
Datalog - Up to 4 user selectable measurement functions (60 with PC software)									
Datalog Window		No-Gap analysis, Minimum window 10ms				No-Gap analysis, Minimum window 10ms			
Memory		16,000 records				16,000 records			
Communication Ports									
RS232		Baud rate up to 38.4kbps,RTS/CTS flow control							
LAN		(Option L) 10/100 Base-T Ethernet auto sensing				(Fitted as standard) 10/100 Base-T Ethernet auto sensing			
GPIB		(Option G-E) IEEE488.2 Compatible - via external communications box				(Option G-E) IEEE488.2 Compatible - via external communications box			
USB		USB 2.0 and 1.1 compatible							
Extension		Fitted as Standard							
Standard Accessories									
Leads		Power, RS232, USB				Power, RS232, USB			
Connection Cables		20A (Std version) or 36A (HC version) 1.5m long 4mm stackable terminals 1x red, 1x yellow and 2x black per phase							
Connection Clips		4mm terminated aligator clips - 1x red, 1x yellow and 2x black per phase							
CD-ROM		CommView2 (RS232/USB/LAN), Command line, Script based communication software (Datalogging software available as free of charge download)							
Documents		User manual, Communications manual, Calibration certificate, Quick start guide							
Mechanical/Environmental									
Display		480x272 dot full colour TFT, White LED Backlit							
Dimensions		92H×215W×312D mm excluding feet							
Weight		3.3kg(1 Phase), 4kg(3 Phase)							
Safety Isolation		1000Vrms or DC(CATII), 600Vrms or DC(CATIII)							
Power supply		90 ~ 265Vrms, 50 ~ 60Hz, 40VAmax							
Operating Conditions		23°C ± 5°C Ambient Temperature (or air intake temperature when rack mounted), 20-90% Non-Condensing Relative Humidity. Temperature coefficient ±0.01% per °C of reading at 5-18°C and 28-40°C							

PRODUCT COMPARISON

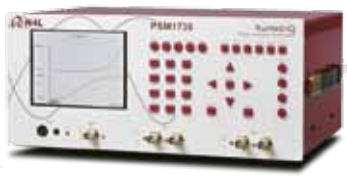
	PPA500	PPA1500	PPA4500	PPA5500
Basic Accuracy				
V, A rdg error	0.05%	0.05%	0.03%	0.01%
Power rdg error	0.10%	0.10%	0.04%	0.03%
Phase Options				
Internal	1 ~ 3	1 ~ 3	1 ~ 3	1 ~ 3
Master/Slave operation	–	–	4 ~ 6	4 ~ 6
Bandwidth				
20 & 30A Shunt	DC ~ 500kHz	DC ~ 1MHz	–	–
10 & 30A Shunt	–	–	DC ~ 2MHz	DC ~ 2MHz
50A Shunt	–	–	DC ~ 1MHz	DC ~ 1MHz
Voltage Input				
Max input voltage	2500Vpk	2500Vpk	3000Vpk	3000Vpk
No. of ranges	8	8	8	9
Direct Current Input				
10Arms model	–	–	●	●
20Arms model	●	●	–	–
30Arms model	●	●	●	●
50Arms model	–	–	●	●
No. of ranges	8	8	8	9
Features				
Scope and Graph Modes	–	●	●	●
USB Memory port	●	●	●	●
LAN Port	○	●	●	●
GPIB Port	○	○	○	●
RS232 Port	●	●	●	●
Real time clock	●	●	●	●
19in Rack mount option	○	○	○	○
Torque and Speed	–	–	●	●
IEC61000 Mode	–	–	–	●
PWM Motor Drive Mode	–	● (Via Parallel Filtering Options)	●	●
Oscilloscope/Graphic	–	●	●	●
Transformer Mode	–	–	●	●
PWM Filter Options	–	2	7	7
Speed/Harmonics/Sec	300/sec	300/sec	600/sec	1800/sec
Internal Datalogging	4 Parameters	4 Parameters	16 Parameters	16 Parameters
Datalog Records	16000	16000	16000	10M
ABD0100.1.8 Mode	–	–	–	●
Internal Memory	192kB	192kB	200MB	1GB
Harmonics	50	50	100	417
Minimum Window Size	10ms	10ms	10ms	2ms
Dimensions - Excl. Feet H x W x D (mm)	92 x 215 x 312	92 x 215 x 312	130 x 400 x 315	130 x 400 x 315
Weight	3.3 - 4kg	3.3 - 4kg	5.4 - 6kg	5.4 - 6kg

– Not Applicable ○ Option ● Standard

All specifications at 23°C ± 5°C . These specifications are quoted in good faith but Newtons4th Ltd reserves the right to amend any specification at any time without notice

The N4L product range also includes Frequency Response and Impedance Analyzers, Selective Level Meters and Laboratory Power Amplifiers

PSM3750
10µHz ~ 50MHz



PSM17xx
10µHz ~ 35MHz

Applications

Newtons4th Ltd N4L

- Power supply phase margin and gain margin (FRA)
- Inductance, Capacitance and Resistance (LCR)
- Analysis of mechanical vibration (HARM)
- Phase Angle Voltmeter (PAV)

Contact your local N4L Distributor for further details

Newtons4th

Newtons4th Ltd (abbreviated to N4L) was established in 1997 to design, manufacture and support innovative electronic equipment to a world-wide market, specialising in sophisticated test equipment particularly related to phase measurement. The company was founded on the principle of using the latest technology and sophisticated analysis techniques in order to provide our customers with accurate, easy to use instruments at a lower price than has been traditionally associated with these types of measurements. Flexibility in our products and an attitude to providing the solutions that our customers really want has allowed us to develop many innovative functions in our ever increasing product range.

Newtons4th Ltd are ISO9001 registered, the internationally recognised standard for the quality management of businesses

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2010

In recognition of the technical innovation and commercial success of the PPA series, N4L received the "Innovation 2010" Queen's award for enterprise

Distributed by:

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